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O'Shea Getz P.C. 1500 MAIN ST. SUITE 912 SPRINGFIELD, MA 01115				
EXAMINER				
GORDON, MATTHEW E				
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2892				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/524,672

Applicant(s)

FRERICHS ET AL.

Examiner

MATTHEW GORDON

Art Unit

2892

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/14/2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
4a) Of the above claim(s) 1-15 and 28-31 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 16-27 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 11 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date 02/11/2005 and 04/10/2007
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-15 and 28-31, drawn to a method for producing a semiconductor sensor.

Group II, claim(s) 16-27, drawn to a semiconductor sensor.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The inventions of Group I and Group II lack unity because the claimed limitations of removing an amount of any excess adhesive compound and removing a predetermined portion of the intermediate layer that are stated in Group I is not required in Group II.

3. During a telephone conversation with Patrick O'Shea on 06 November 2009 a provisional election was made with traverse to prosecute the invention of Group II, claims 16-27.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-15 and 28-31 of Group I are hereby withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the

application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

5. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Claim Objections

6. Claims 20 and 21 are objected to because of the following informalities:

Regarding claim 20, line 3: Delete the word “conical” since it is repeated twice in a row.

Regarding claim 21, line 3: Replace “regions” between “predetermined” and “that” with “region”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 16-22 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent Pub. 2002-158447 A to *Okada et al.* (from hereinafter *Okada*).

Regarding claim 16, *Okada* teaches a multilayer semiconductor sensor (Fig. 1) comprising a first functional layer (Fig. 1d, layer 101, [0018]), a second functional layer (Fig. 1d, layer 108, [0024]), an intermediate layer (Fig. 1d, insulator layer 102, [0019]) disposed between the first (101) and second (108) functional layers in a first predetermined region, and a plurality of anchoring elements (Fig. 1b, post 104, [0020]) each embedded in at least two of the first and second functional layers (101, 108) and the intermediate layer (102).

Regarding the limitation “semiconductor sensor”, it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the

claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. MPEP 2111.02.

Regarding claim 17, *Okada* teaches the multilayer semiconductor sensor of claim 16, where each of the plurality of anchoring elements (104) is embedded in the second functional layer (108) and in the intermediate layer (108).

Regarding claim 18, *Okada* teaches the sensor of claim 16, where a cross-sectional area of each of the plurality of anchoring elements (304) is cylindrical. (See Fig. 3)

Regarding claim 19, *Okada* teaches the sensor of claim 16, where a cross-sectional area of each of the plurality of anchoring elements (104) increases from one end of the anchoring element to the other end of the anchoring element.

Regarding claim 20, *Okada* teaches the sensor of claim 16, where each of the plurality of anchoring elements (104) has a conical shape.

Regarding claim 21, *Okada* teaches the sensor of claim 16 where the first and second functional layer (101, 108) adjoin each other in a second predetermined region that is outside the first predetermined region. Here the first predetermined region of *Okada* is interpreted as the region directly between the two anchors (104) as shown in Fig. 1. The second predetermined region of *Okada* is interpreted as a region either to the right or left of both anchors (104) as shown in Fig. 1.

Regarding claim 22, *Okada* teaches the sensor of claim 16, where the intermediate layer (102) is adhered to the first functional layer (101).

Regarding claim 27, *Okada* teaches the sensor of claim 16, where the intermediate layer (insulation film 102) comprises a dielectric material.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Okada*.

Regarding claim 23, although *Okada* fails to teach that the diameter of each of the plurality of anchoring elements (104) lies in a range between 100 and 1000 nm, at the time the invention was made it would have been obvious to one of ordinary skill in the art to use the teaching of *Okada* to form the diameter of the anchoring elements in the range as claimed because it has been held that where general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. (See MPEP 2144.05)

Regarding claim 24, although *Okada* fails to teach that the spacing between the plurality of anchoring elements (104) lies in a range between 100 and 1000 nm, at the time the invention

was made it would have been obvious to one of ordinary skill in the art to use the teaching of *Okada* to form the spacing between the anchoring elements in the range as claimed because it has been held that where general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. (See MPEP 2144.05)

Regarding claim 25, although *Okada* fails to teach that each of the plurality of anchoring elements (104) is embedded into the second functional layer (108) at a depth of between 20 and 500 nm, at the time the invention was made it would have been obvious to one of ordinary skill in the art to use the teaching of *Okada* to form the embedded depths in the range as claimed because it has been held that where general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. (See MPEP 2144.05)

Regarding claim 26, although *Okada* fails to teach that the thickness of each of the first and second functional layer (101, 108) lies in a range between 100 and 1000 nm, at the time the invention was made it would have been obvious to one of ordinary skill in the art to use the teaching of *Okada* to form the thicknesses of the functional layers in the range as claimed because it has been held that where general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. (See MPEP 2144.05)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW GORDON whose telephone number is (571)270-7432. The examiner can normally be reached on Monday-Friday 9 A.M-5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thao X. Le can be reached on 571-272-1708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thao X Le/
Supervisory Patent Examiner, Art Unit
2892

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